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pö Being one of the boys : perspectives from female
industry leaders on gender diversity and the future of Nordic
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***“Being one of the boys”*: perspectives from female forest industry leaders on gender diversity and the future of Nordic forest-based bioeconomy**

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Abstract

Women working in the Nordic forest sector are underrepresented in top leadership positions, despite the female share increasing in higher education programs. Little research exists on this niche actor group in the forest sector context. To fill this gap, we assess perceptions of female leaders on the state of gender diversity in the Nordic forest industry, on the future of the forest sector in the bioeconomy, and on the potential contribution the Nordic forest industry can make to empower women, as promoted by the UN Sustainable Development Goals. An elite interviewing strategy was used to engage female leaders working at the top management level of seven Finnish and Swedish forest companies. According to our results, adapting to “being one of the boys” appears to persist as a norm for female leaders in this masculine industry field. Participants believed that their influence on the industry’s sustainability agenda comes from being in a senior management position, and is not a gender-related aspect. We conclude that the ability of the Nordic forest industry to adapt to strategic renewal into the bioeconomy will require a more diverse company culture, which is not solely gender-based and is fostered at all organizational levels.

Keywords: forest sector; bioeconomy; gender diversity; career roles; sustainability

Introduction

An aging workforce, demand for industry renewal, and rising social and environmental sustainability challenges demand a fundamental transformation of the forest sector. Part

of this transformation relates to diversity in company management, including gender diversity. Women are still underrepresented in the top leadership positions of the Nordic forest sector, despite high representation in higher education programs (Johansson and Ringblom 2017). Also, female members represent a 16% share in both the boards of directors and top management teams in the global top 100 pulp and paper companies (Hansen et al. 2016). Positive changes in terms of increasing diversity in decision-making processes have occurred during past decades, but unequal use of power in the sector, or in society in general, may still compound unnecessary gender stereotypes.

Gender inequality and women empowerment is high in the political agenda globally, being one of the UN Sustainable Development Goals (SDGs) for 2030, (SDG no. 5). Moreover, gender issues, such as lack of professional identity among women in the forest sector (Appelstrand and Lidestav 2015), may prevent the most skilled individuals access to management positions (Holmgren and Arora-Jonsson 2015), thus also hampering the renewal and transformation of the sector.

The existing evidence base related to gendered culture deriving from diversity management in the forest sector is surprisingly scarce. Lidestav and Sjölander (2007) analyzed Swedish forestry professionals, and Appelstrand and Lidestav (2015) focused on female entrepreneurs. In addition, a few forest ownership-focused studies exist (e.g. Umaerus et al. 2013; Follo et al. 2017), but very limited research has been conducted on gender aspects in the forest industry. An exception is Hansen et al. (2016), who modeled the effect of an increased female proportion in the top management level of the global pulp and paper industry, and found it to have a small but positive effect on company-level performance. Moreover, the role of workforce diversity and gender issues as a part of the core business strategy towards a more sustainable forest-based bioeconomy – a dominant concept in the current political and academic discussion on sustainability – has received little to no attention (e.g. Li and Toppinen 2011; Hansen 2016).

In our study, we explore the perceptions of female leaders working in the Nordic forest industry regarding the state and forms of existing gendered culture that impact their careers at the workplace. We inquire about female leaders' perspectives on the future of the forest sector in the bioeconomy, and about the potential contribution of female leadership in the decision-making process towards increased sustainability of the Nordic forest industry, in light of the Global Agenda 2030 goals. This explorative study offers

some considerations for untangling the relation between gender diversity, sustainability, and the bioeconomy, on the premise that diversity is both an end goal for sustainability purposes and a mean to boost the bioeconomy potential (Figure 1).

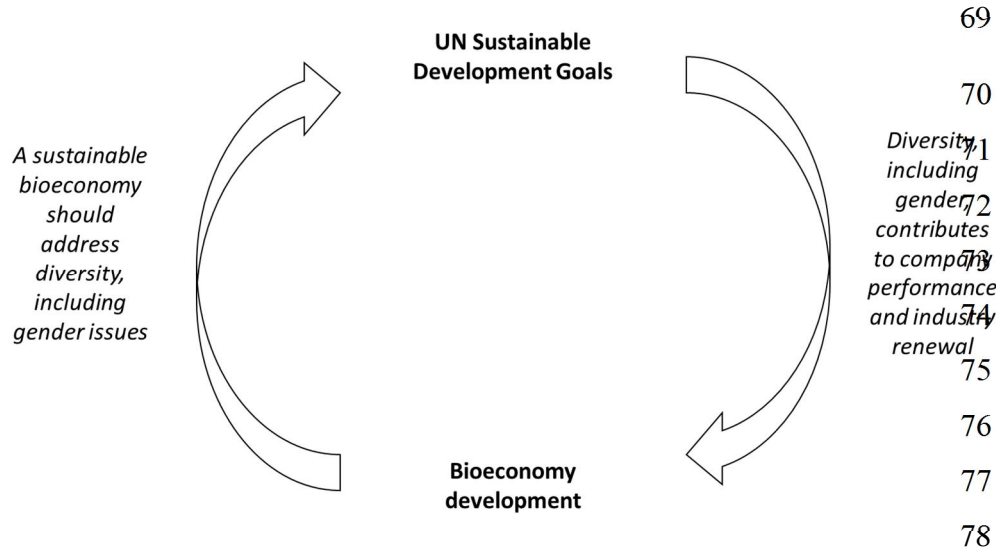


Figure 1. The relationship between gender diversity, sustainability, and bioeconomy development.

Conceptual background

Gendered culture and the forest sector

The structural problems related to female representation in labor markets generally include a pay gap between men and women in similar positions, and generally lower salary levels in female-dominant sectors (Blau and Kahn 2017). The creation of gendered practices that eventually set the norms in an organization can be an obstacle for institutional change, as people presenting the non-dominant gender may feel their competence and authority diminished or questioned.

Diversity in top management positions, including gender diversity, tends to have positive effects on firm performance (Perrault 2015). The business benefits gained through a higher degree of diversity in top management may include improved financial performance or strategic benefits such as better compliance with the ethical and social standards of a company. This may indirectly raise company value (Isidro et al. 2014) or result in higher sustainability ratings (Bear et al. 2010), fostering stakeholders' trust in

the company (Perrault 2015). Enhanced corporate reputation and employee attractiveness (Kakabadse et al. 2015) are other commonly mentioned benefits. The majority of large-scale companies in the Nordic region tend to incorporate certain gender balancing elements embedded in their code of conduct or as a part of their sustainability programs. The gender equality aspect is also covered in the national implementation plans of both Finland and Sweden for the SDGs of Agenda 2030. Certain forest companies also explicitly acknowledge gender equality and women's empowerment, but SDG 5 is also integral to all dimensions of inclusive and sustainable development.

Diversity may naturally also have adverse effects on company performance, for example via increased decision-making costs due to reoccurring conflicts and general friction between board members (Adams et al. 2015), but overall, the available literature appears to highlight a greater range of positive than negative outcomes. In addition, further evidence shows that a minimum threshold may exist in terms of diversity based on representation of different sexes, as Post et al. (2011) suggest that having as few as three or more females on a board of directors can positively influence a company's environmental performance.

In reviewing forestry-related diversity management literature focusing on the rate of female and male representation, Baublyte (2017) identified several barriers that women may experience in their career paths before reaching top leadership level. These barriers range from stereotypes and twisted role models to industry culture and social policy - related aspects. One issue is the tokenism problem, which arises when females are hired to only improve a company's female-male ratio, to give the impression of better equality within the workforce. Token females often feel excluded from the rest of the management group, which concurrently lacks support and respect for the token member. Thus, despite females potentially possessing strengths to improve corporate sustainability and the decision-making process, just having token women is not enough (Bear et al., 2010). Another interesting aspect is the "Queen Bee syndrome", a situation where senior female leaders who have reached the top, demonstrate their preferences for men instead of helping other females advance their careers in male-dominant firms and fields (Derks et al. 2011).

Holmgren and Arora-Jonsson (2015) argue that gender equality in the forest sector has turned into an issue of individuals' opportunities to work and make business, rather than

an opportunity to disturb the established and structural power relations in decision-making. While the most serious gender-related human problems most likely occur outside the Nordic regions, the Nordics would also benefit from improvements, despite generally being known as prime examples of gender equality. Johansson et al. (2018) recently documented the prevailing forms of gendered culture regarding sexual harassment in the context of the Swedish forest sector, suggesting further research on the actual mechanisms that allow sexist behavior, both at the workplace and in education.

Bioeconomy and sustainability

The bioeconomy is among the currently dominant concepts for informing and shaping pathways for global sustainability transformations (D'Amato et al., 2017). It proposes to substitute current fossil-based industrial inputs (materials, chemicals, energy) with renewable biological resources (Kleinschmit et al. 2014; Pfau et al. 2014; Bugge et al. 2016), as Table 1 illustrates. Knowledge and biotechnology -based innovations are key elements, especially regarding shifts from lower value products/services (e.g. bioenergy, fiber) to higher value ones (e.g. bio-based materials, chemicals, and pharmaceuticals).

The forest sector has a central role in the bioeconomy as both a provider of biomass, and as a manufacturer of higher-value products (Kleinschmit et al. 2014; Roos and Stendahl 2015). In fact, despite the bioeconomy appearing to be an emerging concept in the context of corporate sustainability across various sectors, companies in the forest sector are actively adopting it for communicating sustainability issues (D'Amato et al. 2019).

According to Korhonen et al. (2018), the realization of bioeconomy ambitions hinges to a great extent on the competitiveness of bio-based firms and industries, and their ability to combine a more diverse knowledge base. The bioeconomy is thus supposed to contribute to and benefit from the development of regional, multi-actor clusters of competences, knowledge, and technologies (Bugge et al. 2016). This is to be supported by, among other industry transformations, a sufficient level of diversity in company leadership and workforce (Wolfslehner et al. 2016), including ethnic, professional, age, sex and gender -related aspects.

160

161 Table 1. Summary of the main visions of the bioeconomy for sustainability.

Sustainability dimension	Main vision of the bioeconomy
Economic	New bio-based or hybrid products and services, advancements in production and innovation with biotechnology; sectoral renewal and inter-sectoral collaboration (Hansen 2016; Reim et al. 2018).
Social	Primary producer livelihoods in rural areas (forestry, agriculture, fisheries); consumer or user-oriented products and services; regional, multi-actor clusters of competences, knowledge, and technologies (Bugge et al. 2016; Pelli et al. 2017).
Environmental	Substituting fossil resources with bio-based ones, possibly following principles relating to sustainable sourcing, cascading use of biomass, and recycling.

162

163 Several scholars and experts have pointed out the current limits of the bioeconomy as a
164 concept for forwarding environmental and social sustainability (El-Chichakli et al. 2016;
165 Kröger & Raitio 2017; Pfau et al. 2014) (Table 1). For example, sustainable sourcing of
166 biomass and efficient resource use, including recycling and reuse, are not explicitly
167 addressed in the mainstream understanding of the bioeconomy. Scholars have thus
168 advocated a more inclusive conceptualization of the bioeconomy, which could draw from
169 related sustainability concepts (e.g. circular and green economy) (Bennich and Belyazid
170 2017; D’Amato et al. 2017, 2018; Hetemäki 2017). Mustalahti (2018) pointed out that
171 the forest sector and bioeconomy emphasize the role of industrial sectors in Finland, while
172 more discussion is needed on human rights, consumer behavior, and citizen participation.

173

174 **Data and methods**

175 Our initial company population was selected from a study by Hansen et al. (2016),
176 analyzing the state of female representation in the top 100 global pulp and paper
177 industries, which lists five Swedish companies (Holmen, Setra Group, Södra, Sveaskog,

Svenska Cellulosa) and three Finnish forestry companies (Ahlstrom, Stora Enso, UPM-Kymmene). During the research process, Ahlstrom underwent an organizational change and became a Swedish-based company Ahlstrom-Munksjö.

We used an elite interviewing strategy (cf. Berry 2002) to engage women working in top management. As the women represent a minority at the management level, we assume their views are particularly helpful for identifying traits of gendered culture in the field. The interview invitations were first emailed to the intended participants. If a response was not received, the selected individuals were contacted multiple times via phone or email during a seven-month period in 2017.

Among the identified total sample of 32 female leaders in top management teams or in leadership roles of business lines, 10 were available for interviewing in person or over the phone, 14 declined the request, and eight could not be reached. Respondents belonged to seven different forest companies, and their professional roles varied from division leadership to human resources and legal affairs (see Table 2). Drawing conclusions on non-respondent bias is not possible using qualitative data, but we can note that female leaders responsible for corporate communications declined more often than others when comparing the set of non-respondents. This may relate to communication vice presidents with non-forestry backgrounds feeling that they have no direct stake in discussing gender diversity issues in the forest industry.

Table 2. Interviewees' area of responsibility, country of employment, and duration of the interview.

id	Area of responsibility	Country	Interview duration (min)
1	Business division	Finland	45
2	Sustainability management	Finland	40
3	Human Resources	Finland	25
4	Human Resources	Sweden	15
5	Business division	Sweden	20
6	Legal affairs	Sweden	20
7	Business division	Sweden	15
8	Business division	Sweden	20
9	Finance	Sweden	25
10	Business development	Sweden	15

Before the interviews, the interviewer researched each company to analyze gender diversity in the top management, diversity programs, and company primary business focus. The interviews and interview style were adjusted to match the interviewees. This allowed for better understanding of the ideas expressed by the interviewees, enabling better probing techniques, if necessary. Multiple sources were used to validate the interviews, which helped minimize the problem of exaggeration and the possibility of misunderstanding concepts (Berry 2002). Ensuring confidentiality of the interviewees' identities allowed for more reliable and open communication between the interviewer and interviewees.

The interviews were conducted during April–November 2017 in English, and they lasted an average of 25 min. The interviews were recorded with permission from the participants, and the data were then transcribed and coded. Thematization was used as a research method for coding the collected interview data. Firstly, we explored each interviewee's perceptions concerning the state of gender roles and culture in the industry and in their company strategic planning. Secondly, we focused on the future of the industry, and aimed to investigate the potential of forest sector contribution to a more sustainable bio-based economy.

Despite the above-mentioned precautions implemented to guarantee successful data collection (we followed methods used in similar studies or recommended by relevant literature, e.g. Gummesson 1991; D'Amato et al. 2016), remaining limitations to our data include the following. First, internal validity of the data is dependent on the interviewees' experiences and knowledge of the study participants. As a positive side, many of our interviewed leaders had worked in the industry for many years, even several decades, and had experienced somewhat similar career paths. However, certain participants had only spent a few years working in the forest industry. Second, keeping in mind the sensitivity of the topic from a highly personal perspective, it is possible that certain interviewees were not entirely open about their experiences and insights despite their full confidentiality being assured. Third, due to the small number of study participants, a comparison between the two countries or across professional responsibilities is not possible, and the observed differences may still be based more on differences between

companies rather than individuals or their home countries. Fourth, with such a small sample, it is impossible to tell how certain enablers could affect the career paths of *other women* in the same industry. Finally, it is impossible to know how the interviewees' careers would have differed if certain personal-level enablers or barriers had not occurred during the interviewees' way to top management.

Results

Gendered culture in the top management of the Nordic forest industry

The gendered culture was perceived to prevent females from having equal opportunities for reaching leadership positions. According to the interviewees, women in the Nordic forest industry are expected to adjust their professional image and behavior to match the standards set by male colleagues, which is likely to hinder institutional change toward true gender equality (Arora and Jonsson 2015; Appelstrand and Lidestav 2015). Adapting to "being one of the boys" appears to persist as a norm for female leaders, as illustrated by the following quote:

"I think I have not made it [gender] an issue. In that sense, I guess being one of the boys but yet a female. So I think what has helped me, I think are my leadership skills, I think I'm good with people, good with customers, but also good with [my] own people."

The inability to participate in certain social practices, such as sauna or hunting, did emerge in several interviews as an important challenge for female career development. Exclusion from social practices implies missed opportunities for social bonding, networking, and information sharing; more importantly, it means not being able to fully participate in informal decision-making processes. In the context of sauna, one interviewee expressed her position as:

"They made it quite clear that if I wanted to, I could use the sauna first and then they would go in after me. They would go to a social event, and I would be sitting there alone."

The observations that female leaders "age faster" than their male colleagues can be considered sexist, as one interviewee stated: "A 50-year-old lady is older than a 50-year-

old man.” The perceived difference in aging is a yet unidentified form of gendered culture in the forest sector (see Johansson et al. 2018). Someone identified the lack of technical forestry education background to act as an entry barrier into the field and career development, as the following quote demonstrates: “...At least in Sweden, you tend to hire from a very narrow scope of people...”, which establishes cultural conformity exclusive of “outsiders” that might be competent but not sharing the same educational identity.

A few interviewees also saw being female as an advantage in certain circumstances, for example by being remembered better among the male-dominated peer group. Three participants believed that the beginning of their careers and their climb on the career ladder had been the most difficult time during their careers due to old beliefs and a highly masculine industry culture, whereas others said that gender-related challenges can actually become worse with aging and increasing career ambitions. The following two quotes illustrate the range of this continuum with respect to being a woman in a male-dominant sector:

“You have to endure the first 15 years. But once you get to a senior position, I do not think it is so much of a problem.”

“I think it [the greatest challenge] is age and competition. If you’re past 40, then I think you begin competing with the guys. And then you start having problems.”

Differences were recorded among the interviewees regarding experienced difficulties during their personal career paths. Moreover, the diverse personalities of the interviewed leaders also became visible when reflecting on their personal experiences. Only one leader claimed to have noticed the “Queen Bee phenomenon” (Derks et al. 2011). The woman described the relationships among men to be very brotherly, while women often did not appear to share a similar sisterhood relationship with their female colleagues, which may indicate the need to adapt to the gendered culture. Nonetheless, many respondents highlighted the importance of building a diverse set of competencies and receiving support from their superiors as powerful enablers for their career paths. The most important point was to have someone “...who believes in you...”, irrespective of whether it is a male or a female.

A more detailed summary of the enablers and challenges regarding career development based on our sample are summarized in Table 3. It should be noted that these factors do not appear in order of any importance ranking. Based on Table 3, several features of gendered culture exist in the Nordic forest industry, which in the context of this study represent challenges for females moving toward leadership positions. These may be generalized for diverse gender identities beyond biological sex. In parallel, several enabling factors that positively promote higher gender equality at the top can also be identified.

Table 3. Observed challenges and enabling factors of female leaders in the Nordic forest industry (modified from Baublyte 2017)

Observed challenges:	Characteristics enabling reaching leadership positions
<ul style="list-style-type: none"> Existence of masculine networks and homosocial reproduction Not being able to participate in certain social events due to gender Abandonment of own gender identity to avoid being discriminated and stereotyped Inconsistency between characteristics attributed to leaders and those attributed to women in general A lack of technical forestry education background Social norms regarding childcare arrangement 	<ul style="list-style-type: none"> Females aiming for high competence levels: continuous skill development and use of cross-functional training, development of leadership skills Females with devotion to tasks, determination, and awareness of personal goals and ambitions, and with readiness to step out of individual comfort zones and to take chances Existing personal-level support systems Having a boss supportive of career development who pushes the employee to reach higher Role models exist as an essential aspect of motivating young females, as well as modernizing the image of the entire industry

Corporate sustainability and the future of the forest industry in the bioeconomy

The perceived gender-related challenges in leadership positions discussed above also provide further insights into strategic business development. The interviewees are not

able to separate their professional and seniority level from their gender, while overall they felt their voices were being heard in the corporate decision-making regarding sustainability issues. They feel they hold sufficient authority and that as leaders they are respected, and their opinions are taken into account. One interviewee underlined that social and environmental sustainability has high personal value, as the following quote elaborates:

“I am in a position where I have influence. And I personally think that sustainability is very important. And I am very much involved in such issues. So I do not think that it is me being a woman, but rather me being in a senior position with an interest in social sustainability issues.”

The global role of forest-based bioeconomy in creating a more sustainable future was recognized by all study participants. This was fairly often voiced from a pragmatic perspective regarding the types of products the pulp and paper industry may develop in the future, which may, in part, support more sustainable natural resource-based production and consumption. Replacing plastic and fossil fuels with renewable materials was the most quoted example, and the following quote expresses optimism toward the industry’s capability of renewing itself:

“I think there are going to be a lot of new products, to replace plastic for example, also a lot of [development] thinking around the production, what else could be done. We already resemble a circular economy with an integrated pulp mill, and now the question is how to use the side products in a better way.”

One female leader separated bioeconomy into three production lines: traditional (pulp and paper -based), innovative new products, and the increased reuse of waste and industry side streams. Even though she believed that pulp and paper production is going to be important in the future, she stated that the bioeconomy should focus more on developing new innovations. The third part of the forest bioeconomy, focusing on circularity, may also be crucial for the future of the sector. According to an interviewee, if these parts of the bioeconomy can operate in balance with sustainable forest management, the industry can provide many better solutions for the future of the world. Nonetheless, she concluded with a cautionary note:

349 *“I think that old-fashioned ‘technology guys’ are coming too much to the front*
350 *and are intensifying too much too quickly. We need to really consider now how*
351 *much wood we can really use for our bioeconomy.”*

352
353 One interviewee also pointed out that the number of female forest owners is increasing in
354 Finland, as it is in Sweden, which is likely to diversify forest industry firms’ roundwood
355 procurement seller-buyer relationships. The diversifying forest ownership structure may
356 also increase demand for non-wood forest products and forest protection services. A more
357 diverse workforce in companies operating both locally and globally would allow leading
358 companies to tap into a broader pool of resources, and to also encourage more intense
359 inter-sector communication, as the following quote illustrates:

360 *“I think, in general, that broader diversity in any kind of dimension has a positive*
361 *influence. Because you have people with different perspectives, different*
362 *backgrounds, seeing things in different ways, and that creates [new] dynamics in*
363 *the industry as such. ... Especially, if you want to look into the future and develop,*
364 *you need to incorporate different views, otherwise you will be caught up in old-*
365 *fashioned ways.”*

366
367 One interviewee said that forestry could contribute to nearly every SDG set by the UN.
368 Even though the possibilities are endless, companies are practically forced to focus on a
369 few key goals. Replacing fossil fuels and materials, and further developing sustainable
370 forest management solutions were mentioned as crucial avenues towards sustainability.
371 Interviewees also mentioned that reaching the SDGs will inevitably require cooperation
372 between various sectors:

373 *“I think we should look at it as a partnership between various*
374 *companies, various fields, sectors. This is not a one-man show.”*

375 Lastly, having high corporate standards for social sustainability can be an essential aspect
376 of a more sustainable future, as also envisaged in the emphasis area crossing between
377 SDG 5 and SDG 9.

Discussion

Our qualitative findings illustrate manifold practical hindrances in what it means to be working as a female top-level leader in the traditional and masculine forest industry, where women are still underrepresented at the management level. The interview results show that the Nordic forest industry is still considered a traditional and masculine field of business, as also noted in previous literature (Lidestav and Sjölander 2007; Vainio and Paloniemi 2013). However, the ability of the interviewed female leaders to succeed in their careers despite gendered culture-related barriers demonstrates that the forest sector is moving ahead towards higher gender diversity. Despite this indication, it must be remembered that this is a highly exclusive and extremely small group of female leaders, as we identified a total of 32 women in top management teams or equivalent leadership roles of business lines.

With the limited amount of evidence gathered through our interviews with 10 managers, we cannot formulate definitive conclusions on the state of gender-related challenges in the Nordic forest sector. It is also not possible to depict the state of reported phenomena beyond the sample, such as the need to mimic the behavior of male peers (Hoyt and Murphy 2016) or even the lack of empathy for female peers (Derks et al. 2011). Moreover, certain issues may be so painful that the interviewees did not consider even the anonymous interview situations confidential enough to bring them to light, thus fostering conformity with a culture of silence needed for “climbing the ladder” in the industry (Johansson et al. 2018). For example, tokenism, the practice of hiring women merely to improve a company’s gender ratio did not emerge from the interviews, even though it appears relevant in previous literature on gender diversity (Bear et al. 2010). Notably, while the interviewed women on the one hand acknowledge the role of gender diversity in transforming the industry, on the other hand they identify such transformation as still conforming to masculine norms. Holmgren and Arora-Jonsson (2015) observed a similar phenomenon in the context of Swedish forest policy, where the explicitly articulated aim is to change women from being “inactive” and “underrepresented” rather than changing the underlying structures, which make them marginalized in the forest sector. According to them, the dominance of economic values (competitiveness, economic growth, individualism, faith in markets) over sustainability and responsibility

instill the renewal of the forest sector toward improved climate mitigation practices and gender equality (Holmgren and Arora-Jonsson 2015).

The results from our study have concurrently built a positive picture of the active recognition of sustainability issues at the top leadership level. This impacts the Nordic forest industry by increasing the awareness level concerning the importance of corporate sustainability and the importance of the question of how the forest industry could potentially contribute to solving global sustainability challenges. The interviewed female leaders unanimously stated that their influence on industry sustainability agenda comes from being in a senior position. This warrants studying the same topics among a comparable sample of male leaders, to assess whether gender-specific influences to sustainability orientation can be established or not. In general, we have very limited understanding concerning the role of the actual people driving the change to the bioeconomy (Hansen et al. 2016). We have limited understanding of the knowledge and power structures these people create, and how these structures are related to gender or diversity.

Nonetheless, the ability of Nordic forest companies to adapt to future needs will obviously require more diverse company culture, which is not solely gender based and is fostered at all organizational levels. Replacing fossils fuels, plastic, metal, and cotton with renewable bio-based materials will require the intensified use of forest resources, but the challenge is accomplishing this without compromising sustainability in resource use. Enhancing circular economy aspects, suggested by one of the interviewees, could provide solutions to this (Ciccarese et al. 2014; Bezama 2016; Vis et al. 2016). The respondents in our study also remarked that the future of the forest sector relies on a shift from traditional (pulp and paper) to more innovative products.

As also emphasized by Kleinschmit et al. (2014), the bioeconomy concept has developed to include a great variety of agendas and ambitions, implying that challenges and opportunities may cause the borders of the traditional forest sector to become blurred. The next significant goal for forest companies appears to be modernizing the industry's image. An aging workforce and inability to attract young talent create a barrier for further industrial development. Playing an important role in a sustainable future, the forestry

industry must rethink its old concepts and become a part of the modern and urbanized world. Focusing on the bioeconomy and innovativeness of future solutions, the sector can (and should) interest and attract young talents (Hodge et al. 2017; Lawrence et al. 2017).

Conclusions and future research

Our exploratory study investigated perceptions of female leaders in the Nordic forest industry on gendered culture in the workplace, and on their role in the strategic decision-making process toward corporate sustainability and the future of forest industry in the bioeconomy. The Nordic forest industry still appears to be a traditional and masculine field of business. A more diverse company culture at all organizational levels, not just gender based, has been called for to foster the ability of the Nordic forest industry to adapt to strategic renewal into the bioeconomy. Higher diversity at the top management level represents one under-recognized opportunity, which may allow the industry to grow and evolve into an even more important player globally, to better meet diverse customer expectations, and to earn the social license to operate both at local and global levels. However, having no active diversity management policy can create challenges in the work climate and job satisfaction (see e.g. Vinnicombe and Singht 2002; Aalto et al. 2014).

Many areas still require investigation from a gender-specific research perspective. Due to the small number of potential respondents in the context of the Nordic forest sector, pursuing face-to-face and longer interviews may be worthwhile. Broader samples could otherwise extend to women working in middle management or in small- and medium-scale forest companies, as well as the top management level in expert roles. This could bring new and more comprehensive insights concerning the role of women empowerment as a way of increasing the inclusiveness and social sustainability of Nordic societies.

Collecting paired reference data on male leaders from a similar management level would also be of interest, to reach a more comprehensive and comparative assessment on top management perspectives concerning the commitment to sustainability and other core issues – such as the bioeconomy – around industry renewal opportunities and challenges.

Expanding the analyses to other areas beyond the Nordic countries would be useful in discerning between culture-specific and more universal aspects. Comparative assessments can also be performed with other masculine industries, such as metal industry or engineering and consulting, which have undergone changes in gender diversity. This would allow the forest industry to learn from best practices implemented elsewhere.

At the practical level, a scope to eliminate discriminations and stereotypes still appears to exist, and company-level gender diversity and awareness programs should be developed further to reach this outcome. Educating employees about the challenges of under-represented employee groups and the underlying causes of these issues could improve the general awareness in the subject matter (Johansson et al. 2018). Having more clear and concrete diversity goals at different levels of the company, rather than one for leadership teams and one for more general purposes, could allow companies in the Nordic forest industry to identify problem areas and focus on solving the most critical ones.

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Appendix 1. Interview questions

GENDER & FOREST INDUSTRY

1. How would you describe the general atmosphere within your company with respect
to females in the workforce? (Has this changed during your time at the company?)

2. How would you describe the general atmosphere within the industry with respect to
females in the workplace? (Has this changed during your career?)

CAREER PATH

3. What do you think were the main three factors that helped you attain a leader's
position in this field?

4. What do you consider to be the three largest obstacles to overcome to advance to this
position?

5. What do you currently see as the most challenging issue in being a female leader in
the forestry sector?

IMPACT

- 662 6. How do you think your presence as a female leader impacts the financial,
663 environmental, and social performance of your company?
- 664 7. As a female leader, do you think you can influence the strategic planning/decision-
665 making process in relation to corporate sustainability? In what way?
- 666 8. From your perspective, what do you see as the primary benefits to a forest sector
667 company in having females in top leadership?
- 668 FUTURE
- 669 9. What would make the sector a more attractive place to work for female leaders?
- 670 10. What advice would you give to young females entering the industry?
- 671 11. In your opinion, how can the forest sector contribute to the Sustainable
672 Development Goals (timeframe: towards 2030)?
- 673 12. What is the future of the forest sector in the bioeconomy (towards 2030)? Please
674 describe in 2–3 sentences.